Strategic Defense Initiative is flawed in many ways

To the Editor:

While I usually read the feed- back section of The Tech with a measure of indifference, on this occasion I feel compelled to respond to the letter of John Pitrelli and Kevin Theobald [*SDI ensures our retaliation,* Az. 22], and offer a response to Alan Szarawarski's guest column [*SDI is impractical and foolish,* Oct. 18]. For while they correctly point out some logical flaws of Szarawarski, they themselves make some serious errors in reasoning.

They state "the intention (of SDI) is that a high attrition rate on a Soviet strike would ensure that most of our retaliatory force would survive, so the Soviets would realize that attacking the US would be suicidal. ..." Do Pitrelli and Theobald not know that of the roughly 10,000 strategic warheads in the US arsenal, about 1/2 are on submarines, 1/3 of which are at sea, and on alert status (DEFCON 3) even when all other forces are at their lowest state of readiness (DEFCON 1), not to mention that 1/3 of the boosters force (about 100 B-52s) is always at peak readiness, capable of being launched within 15 minutes? Furthermore, a Soviet attack on our communications facilities would not prevent the subs from launching their missiles, since they too have the capability to launch without the President's wish, albeit with some delay. I don't know what Pitrelli and Theobald think, but attacking with the full knowledge that my opponent will have at least 3000 warheads remaining sounds a lot like suicide to me.

In considering the costs of SDI versus the cost of the Soviets expanding their missile force by a factor of four, which they state as $1.5 trillion (from what source I wonder), Pitrelli and Theobald state "though we do not know exactly what an SDI system would cost, reasonable estimates are far lower than $1.5 trillion." In fact, a 1982 Defense Department report said that a system of space-based lasers, not including all the other systems which a complete SDI system might have, would cost up to $500 billion (see "Strategic Defense and Anti-Satellite Weapons." Hearing before the Senate Committee on Foreign Relations, 4/25/84, p. 67). And when was the last time a major military system was completed anywhere close to its original budget? The costs of SDI are likely to increase dramatically as the vicious race between countermeasures and counter-countermeasure gets into full swing.

The whole subject of countermeasures is a tricky area. For instance, during the boost phase, one could reheat one's ICBM's, so that any laser light would be distributed over a large area. Or each ICBM could continuously secrete a laser absorbing liquid from its nosecone. Perhaps Pitrelli and Theobald (and their sources) could devise arguments against these measures, but I could always come up with more. The SDI system would have to have counter-countermeasures for every Soviet countermeasures already deployed in space, whereas the Soviets could decide at their leisure and on the ground which ones to use and which new countermeasures to research.

The worst error which Pitrelli and Theobald make concerns the survivability of the SDI battle stations. They state "satellites are much more defendable than missiles because orbiting satellites are weightless and so can be assured as heavily as necessary." They are weightless once they are in space, but their Launching costs depend roughly linearly on their mass. In a report entitled "Ballistic Missile Defense Technologies," the Office of Technology Assessment, US Congress, states that "required shielding weights could reach up to many tons for each defensive satellite station." At $3000/lb for hundreds of satellites, that's tens of billions of dollars. You might say that's negligible to the $500 billion figure I just threw out, but it's an indication of how countermeasure costs can escalate so quickly. Furthermore, shielding is rather ineffective against particle beam weapons, which destroy by penetrating a material, not by burning through a surface, and shielding is completely ineffective against an attack by small, high velocity pellets. With both the target satellite and the incoming pellets travelling at a few kilometers per second, any impact is likely to register. Thus, trying to shield the target. Shielding is also ineffective against space mines which would lurk nearby each defensive battle station, blowing itself up along with the target satellite on orders from the ground. It is also difficult to shield laser mirrors or optical sensors, since they must have access to the outside environment.

The potential for preemptive attacks against space-based ballistic missile defense systems is perhaps the worst aspect of SDI. I imagine that both the US and Soviet Union had SDI-type systems in space. Would there not be great incentives in time of crisis to strike the opponent's SDI system, destroying his defenses while safeguarding your own? This is an important point not addressed by Pitrelli and Theobald.

I could go on for pages, but I don't want to displace any of the cartoons, which is what most of us read The Tech for anyway, right? To Pitrelli and Theobald, my parting words are to check out both sides of the issue. Try the OTA report I quoted earlier or "The Fallacy of Star Wars" by the Union of Concerned Scientists for starters.

Eric J. Raiten '86

UA NEWS AND SHIRT REPORT

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